REMARKS

The claims are 15-26.

Claims 15-17, 19-23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by CN 1171102, hereinafter, the "Chinese reference".

This rejection is respectfully traversed.

As pointed out in the previous Response, the present invention is directed to a highly effective method of recovering melamine from a melt prepared from urea, in a high-pressure process.

In a first step, the present method involves cooling a melamine melt down to a temperature close to the solidification point, i.e. close to the melting point, but still above the melting point.

In main claim 15, this is expressed as "about 1-50°C above the melting point of melamine which is dependent on the amount of pressure".

In a second cooling step, the melamine from the first step, which is at just above the melting point, is quenched with an aqueous solution such as water, aqueous ammonia, etc., which is an inexpensive means for cooling.

Thus, the second step employs water as a cooling agent to effect phase transition from the molten state to the solid state in an economic and efficient manner, with improved product, as will be discussed below.

The cited Chinese reference is based on WO 96/20182, which is essentially equivalent to cited Canzi et al., (U.S. 5,721,363) which will be discussed below.

Essentially, the Chinese reference relates to a "dry-cooling process" in which a melamine melt is cooled from a temperature of 330°C (above the melting point) to 270°C (below the melting point) and cooling does not stop at just above the melting point (in contrast to the present process).

Further, this reference cools to solidify in a water-free manner, i.e. water does not directly contact the melamine melt, in contrast to the present invention where water or an aqueous solution is employed for quenching the melt in the second step.

Thus, the Chinese reference neither discloses nor suggests the present claims.

Claims 15-17 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kokubo et al. (U.S. 3,637,686) for reasons of record.

This rejection is respectfully traversed, particularly since on page 3 of the Official Action, it is stated that this rejection is withdrawn in view of the ambiguities of the reference.

In fact, Kokubo is not ambiguous in failing to teach the essential features of the present invention as discussed above, for reasons set forth in the last Response, particularly, failure to teach steps 1 and 2 of the present invention.

Claims 15-26 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Chinese reference. However, for reasons set forth above, the Chinese reference is completely unsuggestive of the present invention.

At the bottom of page 3 of the Official Action, it is stated that instant claims 18, 24 and 25 differ from the Chinese reference in requiring the use of ammonia solution for recycling and heat recovery. However, for reasons set forth above and as will be further discussed below, the present process and the process of the Chinese reference not only differ in steps, but in the result of these differences in steps.

Claims 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (U.S. 3,637,686) in view of Elvers et al., Ullmann's Encyclopedia of Industrial Chemistry, 5th Edition, Vol. A16, p. 174-179 (1978), for reasons of record.

The deficiencies of Kokubo are discussed above and in the previous Response. There is nothing in the secondary reference, i.e. Elvers et al., which can overcome the above-discussed deficiencies and ambiguities of Kokubo. While it is recognized that recycling of ammonia, heat exchange and scrubbing of off gases are well-known processes, even in the melamine art, this still does not overcome the above-discussed deficiencies of Kokubo.

Claims 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canzi et al. (U.S. 5,721,363) in view of Van Hardeveld (U.S. 4.408,046) for reasons of record.

Van Hardeveld teaches quenching melamine melt with water or an aqueous solution, but this is inconsistent with the "dry cooling" of Canzi or the Chinese reference, and therefore, even if

these references could be properly combined, it is not seen how this would lead to the present invention. Nor does Van Hardeveld teach at what point to use aqueous cooling, i.e. no teaching to contact the melamine melt, which is at a temperature just above the melting point, with an aqueous solution.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canzi et al. (U.S. 5,721,363) in view Manes (U.S. 3,386,999)

With regard to the rejection of Canzi in view of Manes, there is nothing in Manes which overcomes the deficiencies of Canzi's "dry cooling".

In Manes, a low pressure vapor process quenches a gaseous mixture consisting of melamine, ammonia and carbon dioxide with water vapor prior to cooling of the gaseous mixture to condense solid melamine, whereby cyanic acid is hydrolyzed into the gaseous mixture to form ammonia and carbon dioxide, and melamine is condensed as a pure solid, substantially free of urea and melamine precursors.

This vapor phase quench has nothing to do with the aqueous quench of the present process or the dry-cooling of Canzi, neither of which take place in the vapor phase.

Therefore, not only are these references improperly combinable, but Manes fails to overcome the deficiencies of Canzi in failing to explain how and when to use an aqueous quench.

In support of the importance in observing the cooling features presently claimed, there are submitted herewith three Rule 132 Declarations.

The first Declaration is by Birgit Bogner, an expert in the field of melamine production.

Ms. Bogner conducted two experiments representative of the Canzi process, and they both produced melamine with APHA values larger than 100. These APHA values are much greater than those achieved by the present invention.

In this regard, see the attached Rule 132 Declaration of Peter Weiss, also an expert in melamine production, which demonstrates that representative examples of the present invention exhibit far lower APHA values that the melamine products of Canzi.

As explained in the previous response of September 16, 2003 at page 7, the APHA value is a well-known measure of the yellowish tinge that melamine may have after solidification. The lower the APHA value, the less yellow the melamine will be.

With regard to Kokubo, see the second Declaration of Birgit Bogner which explains the deficiencies of Kokubo along the lines discussed above, in verified form.

For the foregoing reasons, it is apparent that the rejections on prior art are untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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